Space Weather Forecast

Issued on Tuesday, 29 November 2022 at 00:23 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor Geomagnetic Storm (G1) intervals through the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Very Low in the past 24 hours, with no significant flares. There are currently three sunspots on the Earth-facing disk, all of which are rather small, simple and apparently stable. No new Earth-directed coronal mass ejections have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar wind parameters, as measured by ACE and DSCOVR at L1, were indicative of waning coronal hole high speed stream influences and perhaps with some embedded CME. Solar wind speeds rose erratically from elevated levels at the start of the period to strong levels, but have dropped back to elevated levels again in the last few hours. The interplanetary magnetic field was mostly moderate but trended slowly down to weak levels. The important north south component fluctuated moderately at the start of the period, with some periods of southward orientation, before varying more weakly. Geomagnetic activity was initially at G1/Minor Storm (Kp 5) level 28/0000-0600 UTC , then Quiet to Unsettled (Kp 1 to 3) until 28/1800 UTC, with Active conditions to end the UTC day.

Energetic Particles / Solar Radiation: No solar radiation storms were observed during the period.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to remain Very Low over the forecast period, with a chance of isolated C-class flares, and just a very slight chance of isolated M-flares.

Solar Wind / Geomagnetic Activity: There are currently no Earth directed CMEs expected. Further coronal hole influences are expected to continue through the period. Firstly from a coronal hole in the northwest quadrant on days 1 and 2 (29 and 30 Nov). This is then likely to be followed by further enhancement from the larger trans-equatorial coronal hole from later on day 3 (1 Dec). Solar winds are expected to be in the range slightly elevated to elevated, perhaps becoming strong at times later in the period.

Geomagnetic activity is expected to be often Unsettled, with occasional Active intervals, and a chance of isolated G1/Minor storm intervals. The chance for G1 likely to be higher later in the period, associated with the larger coronal hole feature.

Energetic Particles / Solar Radiation: No solar radiation storms are currently expected during the forecast period.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	30	30	40	40
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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